5.5 HYDROLOGY AND WATER QUALITY

This section addresses potential impacts of the proposed produced water treatment facility on surface water hydrology and water quality. Specifically, this section discusses the existing hydrologic and water quality conditions found in Pismo Creek and the surrounding basin. Potential impacts associated with the proposed water reclamation facility are analyzed and mitigation measures proposed to reduce significant impacts have been included.

The proposed project would develop a water reclamation facility at the PXP Arroyo Grande Oil Field to facilitate continued operations associated with the approved Phase IV Development Plan. See Section 3.0 Project Description for a detailed discussion of the water treatment process proposed by the applicant.

Published reference documents and applicant-supplied information was used in assessing the potential impacts from the proposed project in this SEIR. Water resources reports used in preparation of this SEIR analysis include:

- *Revised Hydrologic, Water Quality, and Biological Characterization of Pismo Creek* (Entrix Inc., 2006);

  This report augments information presented in the Application and Supplemental Information submitted to San Luis Obispo County Department of Building and Planning on May 22, 2006. This report includes a baseline characterization of conditions in Pismo Creek, and an assessment of impacts to hydrology, water quality, and biological resources as a result of the project;

- *Reasonable Potential Analysis and Options Analysis, Plains Exploration and Production Company, Produced Water Reclamation Facility, 1821 Price Canyon Road, Pismo Beach, California,* prepared by Entrix, Inc. and dated March 16, 2007.

  This report includes information requested by the Regional Water Quality Control Board in their October 6, 2006 letter, including detailed information on the proposed water treatment process, a summary of water quality data for produced water samples collected from the oil field, and alternative water disposal methods considered for the project.

- Laboratory analytical reports prepared by Calscience Environmental Laboratories, Inc. and summary tables of water sample analytical data provided by the applicant for pilot test runs conducted in 2006 for the proposed treatment system.

- *San Luis Obispo County Public Works Department Hydrologic Report* (for the Years 2001 through 2003) (hereinafter referred to as the Hydrologic Report);

  This report includes a summary of the hydrological conditions for San Luis Obispo County for the 2001-02 and 2002-03 Water Years. Data is presented for precipitation, evaporation, stream flow, groundwater and reservoir operations; and

- *California Groundwater Bulletin 118 – San Luis Obispo Valley Groundwater Basin.*

This report provides information on hydrologic basin in the project area as well as groundwater quality.

5.5.1 Setting

The following sub-sections present setting information regarding hydrology, surface water quality, and groundwater resources in the vicinity of the project site.

5.5.1.1 Hydrology

The Pismo Creek watershed area is approximately 47 square miles, and attains a maximum elevation of almost 2,865 feet above mean sea level (msl). The watershed consists of approximately 54 percent mountainous and foothill area and 46 percent valley area. Pismo Creek measures approximately 13 miles in length from its headwaters to its confluence with the Pacific Ocean.

There is no stream gauge in Pismo Creek, and as such there are no long-term hydrologic records. Entrix conducted stream flow measurements within Pismo Creek at the project site. Measured base flow conditions during the Entrix study period ranged from 0.9 to 1.76 cubic feet per second (cfs). The peak flow measured during a 2006 storm event was 98 cfs. Entrix utilized the available data for input to a widely used hydraulic model (US Army Corps of Engineers HEC-RAS) which yielded a bankfull flow of 530 cfs. This flow is equivalent to the 2-year recurrence interval flow, and typically measures the flow before the stream enters the floodplain. Entrix calculated the 10-, 50-, and 100-year recurrence interval flows for Pismo Creek and derived estimated flow rates of 6,703 cfs, 32,239 cfs, and 55,937 cfs, respectively.

5.5.1.2 Surface Water Quality

The Pismo Creek watershed is known to contain naturally-occurring inorganic constituents at levels exceeding drinking water standards, and to contain naturally-occurring oil and gas seeps that can result in detectable concentrations of total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), and regulated metals in surface water and groundwater. The Entrix Report presents a characterization of baseline water quality in Pismo Creek, with an emphasis on the area proposed to receive water from the Produced Water Reclamation Facility.

As part of this study, the applicant initiated a sampling program at three locations (upstream, downstream and near the proposed discharge area) under existing operational and hydrological conditions. Sample location P-1 is the uppermost site, located at the eastern property line near Edna Valley and constitutes inflow to the oil field. Sample location P-2 is directly upstream of the proposed discharge site, and just below the Hyla Crossing of Pismo Creek. Sample location P-4 is downstream of the proposed discharge site at the western property line to determine water quality conditions leaving the project area.

Of the total suite of priority pollutants and water quality constituents investigated, 75 were detected in Pismo Creek during at least one of the surveys. All detections were recorded in both wet and dry sampling rounds, with the exception of six analytes found in all three sampling events, and three in the storm event only. Sample locations within the oil field (P-2

and P-4) indicate similar water quality to the sample approximately 2,000 feet upstream from the oil field (P-1).

The 75 detected compounds in existing creek water samples include metals, semi-volatile organic compounds (SVOCs), VOCs, pesticides, and inorganic compounds. The detections were compared to appropriate regulatory standards. Three compounds were identified at concentrations above Basin Plan water quality objectives, as summarized in the following table:

Table 5.5-1. Pismo Creek Baseline Basin Plan Water Quality Objectives

Type	Constituent	Max (mg/L)	Site	Basin Plan (mg/L)	Exceed Basin Plan Thresholds?
Metal	Selenium	0.0963	P-1	0.01	Yes
Metal	Iron	2.95	P-1	1	Yes
Metal	Zinc	0.172	P-1	0.12	Yes

Source: Entrix, 2006
mg/L – milligrams per Liter

5.5.1.3 Groundwater Resources

Groundwater Supply. The project area lies within the Pismo Creek Valley Basin (refer to Figure 5.5-1). The Pismo Basin (or Pismo Creek Hydrologic Subarea) is relatively small with a total storage capacity of 30,000 acre-feet. The estimated annual safe/yield is 2,000 acre-feet per year, but annual consumptive use has been over 2,100 acre-feet, indicating the basin is slightly over-drafted (San Luis Bay Inland Planning Area). As a result, the City of Pismo Beach is currently at a Level of Severity II for water resources (County of SLO, RMS Annual Report, 2005).

Groundwater flow in the region is generally controlled by the local topography and geology. Groundwater in the site area follows the topographic gradient to the southwest, and is probably bounded by the local hills to the northwest and southeast. The majority of stored potable groundwater at the site is likely to be found in the shallow alluvial deposits associated with Pismo Creek.

The nearest municipal groundwater well to the proposed project is located in the Edna Valley. According to the referenced DWR document titled *California's Ground Water*, well yields within the Pismo Creek Valley Groundwater Basin average approximately 350 gallons per minute, with maximum yields of approximately 500 gallons per minute, and the groundwater production zones within the Pismo Creek Valley Groundwater Basin extend from depths of approximately 10 to 110 feet below ground surface.

Groundwater Quality. Groundwater is produced from three water wells within the property. Groundwater at the Arroyo Grande oilfield overlies a naturally occurring oil-bearing formation. The oil regularly migrates naturally upward from lower elevations toward the surface, frequently coming into contact with the groundwater.

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The applicant conducted groundwater sample collection and chemical analyses at the project site in June 2004. Groundwater samples were collected from two water supply wells located within the project site and operated by PXP. The groundwater samples were submitted to a local analytical laboratory for chemical analyses for the following parameters: pH values, electrical conductivity, total dissolved solids (TDS), heavy metals, and TPH. The analytical results for water samples collected in 2004 were compared to analytical results for samples collected from the same wells in 1986 and 1993. A review of the analytical results shows that there has been no significant increase in metals or TDS concentrations. TPH was not indicated above reporting limits in samples collected from the two wells. Electrical conductivity and pH values have increased slightly in each well but do not exceed state or federal drinking water standards known as Maximum Contaminant Levels (MCLs). Comparison of this data with historical data does not indicate a significant impact to groundwater from ongoing steam or wastewater injection activities at the oil field.

Analyses of data from seven public supply wells show an average TDS content of 583 milligrams per Liter (mg/L) in the basin with a range from 450 to 800 mg/L. The water quality objective of the Water Quality Control Plan for the Central Coast Region for TDS is 1,000 mg/L; however, the water quality for the Pismo Creek Valley Groundwater Basin is characterized by Department of Water Resources (DWR) as having elevated TDS, chloride, nitrate, and sulfate concentrations.

As part of Phase IV EIR implementation, a Sentry Groundwater Monitoring Well Program was incorporated into a groundwater monitoring program as an added protection measure. This monitoring and reporting program has been implemented and evaluates constituents in the groundwater aquifer associated with the Pismo Creek alluvial valley.

5.5.1.4 Flooding

No stream gauges are currently located on Pismo Creek. Entrix utilized direct flow measurements, combined with estimations of flows using a hydraulic model and approximating hydrologic characteristics using data from nearby Toro Creek which is a gauged, analogous coastal watershed within San Luis Obispo County, to determine anticipated flows within Pismo Creek. The instantaneous peak streamflow data for Toro Creek between 1971 and 1978 (the available period of record) was used to calculate recurrence interval flows using the USGS PEAKFQ Version 4.1 software. The recurrence interval is the average interval, in years, between the occurrences of a flood of equal or greater magnitude to the specified value. The results of the analysis indicate a 2-year recurrence interval flow of approximately 143 cfs for Toro Creek which correlates to a flow of 480 cfs for Pismo Creek which is close to the bankfull flow estimate of 530 cfs predicted by the hydraulic model performed for the study (Entrix, 2006).

5.5.2 Regulatory Setting

5.5.2.1 Federal Policies and Regulations

The Safe Drinking Water Act implemented by the U.S. Environmental Protection Agency (EPA) is the primary federal regulation controlling drinking water quality. It was originally implemented in 1974 with significant revisions in 1986. The Act originally set standards for 83

Figure 5.5-1. Pismo Creek Valley Groundwater Basin.

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individual constituents, including pesticides, trihalomethanes, arsenic, selenium, radionuclides, nitrates, toxic metals, bacteria, viruses, and pathogens. The 1996 amendment to the Act made some significant changes, most of which resulted in more stringent application of controls. The amended Act also adopted a more rigorous schedule for amending the Disinfectants/Disinfection By-Products Rule and the Enhanced Surface Water Treatment Rule, both of which took effect in 1998. Federal permits relating to water utilities or infrastructure would be required only if the proposed project resulted in Corps involvement or USFWS involvement if issues concerning the project resulted in construction of new infrastructure such as pipelines, utility lines, etc. in sensitive habitat areas. The proposed project will require authorization from the U.S. Army Corps of Engineers under Section 404 of the SDWA.

5.5.2.2 State Policies and Regulations

The State Water Resources Control Board (SWRCB) and Central Coast Regional Water Quality Control Board (RWQCB) have responsibility for maintaining water quality in the State of California under the authority of the federal Clean Water Act, and the State Porter-Cologne Water Quality Control Act (PCWQCA). The Boards exercise this authority through regulations contained in Title 23 and 27 of the California Code of Regulations (CCR). SWRCB provides statewide policy direction and administrative functions, while the nine RWQCBs have principal authority for permitting and enforcing requirements to control any discharge to surface waters, groundwater, or wetlands.

The RWQCBs also direct, oversee, inspect, and enforce tasks associated with the assessment, remedial monitoring, and closure of sites with discharges that have impacted or could impact the waters of the State. Under the PCWQCA, each RWQCB may impose more stringent requirements on discharges of waste than any statewide requirements as needed to protect water quality based on identified beneficial uses.

Water quality goals and cleanup levels at a site are determined by a variety of site-specific factors. As a broad goal, the SWRCB and RWQCBs attempt to restore all contaminated sites to background levels according to State Board's Resolution No. 68-16 "State of Policy With Respect to Maintaining High Quality Waters in California (often referred to as the State's Anti-degradation Policy"). Resolution 68-16 states that "whenever the existing quality of water is better than the quality established in policies…such existing high quality will be maintained." The Resolution further states that degradation will only be allowed if it is in the best interest of the State, and will not impair present and future beneficial uses. SWRCB Resolution 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code § 13304" empowers the RWQCBs to pursue the "complete cleanup of waste discharged and restoration of affected water to background conditions (i.e., the water quality that existed before the discharge)".

Federal and State water quality criteria and standards designed to protect human health and welfare, agricultural use, and aesthetics have been established in a wide range of references. Of all water quality criteria, only the United States Environmental Protection Agency's (U.S. EPA) and California Environmental Protection Agency's (Cal/EPA) primary Maximum Contaminant Levels (MCLs) set mandatory water quality criteria for drinking water. RWQCBs have established MCLs as minimum cleanup standards. However, MCLs have not

been developed for all chemical constituents. In such cases, the following water quality goals generally are used:

- California Safe Drinking Water and Toxic Enforcement Act (Proposition 65);
- Cal/EPA Office of Environmental Health Hazard Assessment Public Health Goals ;
- U.S. EPA Suggested No Adverse Response Level;
- National Toxic Rule; and
- California Toxic Rule.

Construction Storm Water General Permit

The applicant would need to obtain coverage under the General Construction Storm Water General Permit, issued by the SWRCB (Permit Order 99-08-DWQ) for the proposed construction activities. To comply with the general permit, the applicant would be required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP is required to include the following elements: 1) identify the potential sources of storm water pollution at the Project Site; 2) identify, select, and implement BMPs to reduce the potential for storm water pollution; 3) train employees in storm water pollution prevention BMPs; and 4) regularly monitor and maintain the effectiveness of the selected BMPs through plan evaluation and annual storm water quality compliance certification.

5.5.3 Impact Analysis

5.5.3.1 Thresholds of Significance

CEQA Appendix G (Environmental Checklist) states that a significant water resource impact would occur if the project:

1. Substantially depletes groundwater supplies or interferes substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
2. Requires or results in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental issues; or,
3. Did not have sufficient water supplies available to serve the project from existing entitlements and resources;
4. Per State CEQA Guidelines, if a project were to substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
5. Any project-related exceedance of the water quality objectives of the Central Coast

Water Quality Control Plan;

6. Any project-related effect that would substantially reduce groundwater production of wells in the project area;
7. Substantially alter drainage patterns which would result in substantial erosion or siltation;
8. Substantially increase the rate or amount of surface run-off;
9. Expose people or structures to significant risk of loss, injury or death involving flooding; and,
10. Place structures in a 100-year flood hazard zone that would impede or redirect flood flows.

Short-Term Impacts

Impact HYD-1: Construction of the proposed project could result in short-term increases in erosion and sedimentation resulting from earth-moving operations and exposed soils.

Discussion: Construction of the project will require land clearing operations to construct several new soil pads for new facilities. Approximately 5.6 acres of land would be disturbed during the course of construction activities. During clearing operations, vegetation will be removed and soil will be exposed. Exposed sandstone-derived soil is vulnerable to erosion by rainfall runoff. Soil eroded from the project site could ultimately be deposited into Pismo Creek, which would increase turbidity and sedimentation.

Impact Category: Class 2

Thresholds of Significance: 7, 8

Mitigation Measure HYD-1:

A. In compliance with the Land Use Ordinance, the applicant will prepare and implement a Sediment and Erosion Control Plan (SECP) for the proposed project. The SECP will include:

- Slope surface stabilization measures, such as temporary mulching, seeding, and other suitable stabilization measures to protect exposed erodible areas during construction, and installation of earthen or paved interceptors and diversion at the top of cut of fill slopes where there is a potential for erosive surface runoff;
- Erosion and sedimentation control devices, such as energy absorbing structures or devices, will be used, as necessary, to reduce the velocity of runoff water to prevent polluting sedimentation discharges;
- Installation of mechanical and/or vegetative final erosion control measures within 30 days after completion of grading;

- Confining land clearing and grading operations to the period between April 15 and October 15 to avoid the rainy season consistent with the County Land Use Ordinance and SWPPP requirements;
- Minimizing the land area disturbed and the period of exposure to the shortest feasible time;
- The SECP will be prepared in accordance with the Land Use Ordinance; and,
- Install long-term drainage devices at new/modified pads, including headwalls, basins, culverts with down-drains and energy dissipating devices (riprap or diffusers).

B. In compliance with Section 23.05.020 – Grading, the applicant will prepare a grading plan for the project.

C. PXP will comply with the requirements under a general stormwater construction permit. Such requirements will include preparation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP shall include provisions for the installation and maintenance of Best Management Practices to reduce the potential for erosion of disturbed soils at the Project site.

Residual Impacts
Impact Category = Class 3. Implementation of this mitigation measure will reduce erosion and sedimentation impacts from construction activities to less than significant levels.

Long Term Impacts

Impact HYD-2: Discharge of treated water to Pismo Creek would affect stream geomorphology due to higher dry-season flows.

Discussion: During low flows in Pismo Creek, the proposed water reclamation facility would discharge 1.3 cfs and would approximately equal base flows measured in the Entrix report. The continuous discharge would approximately double the summer flow conditions. During prolonged drought, the discharge could constitute the only flow in the creek. During storm flows, the discharge would not be discernable in the large volume of streamflow. The results of hydrologic modeling conducted by Entrix indicates that the additional flow of 1.3 cfs would result in a minimal impact to the hydrologic conditions in Pismo Creek. With implementation of the mitigation measures HYD-4a, HYD-4b, and HYD-5, the increased summer flows are anticipated to result in a beneficial impact to fisheries and aquatic species within Pismo Creek (refer to Section 5.3 – biological resources). Additionally, erosion at the discharge point would be reduced by gunite applied to the rip-rap slope (see Figure 3-7). This is anticipated to be a less than significant impact.

Impact Category: Class 3

Thresholds of Significance: 2, 7

Mitigation Measure: Implement Mitigation Measures HYD-4a, HYD-4b, and HYD-5.

Residual Impacts

Impact Category = Class 3. Implementation of the above-referenced measures would reduce geomorphology impacts to a less than significant level.

Impact HYD-3: Groundwater supply may be impacted by the project.

Discussion: Water from the three onsite wells is used only for landscaping and domestic uses. This purpose would not change with implementation of the proposed project. All water used in steam injection comes from treating produced water. The proposed project would treat water produced from the oil-bearing formation and either discharge the water to Pismo Creek or utilize it beneficially on adjacent agricultural lands thereby reducing the amount of water pumped from the shallow aquifer. Up to 840,000 gallons per day would be discharged to Pismo Creek under the discharge only option. With either disposal method, the treatment and re-use or discharge of produced water would have a beneficial impact on the shallow alluvial aquifer along Pismo Creek down-stream of the oil field. This is considered a beneficial impact.

Impact Category: Class 4

Thresholds of Significance: 2, 3, 4

Mitigation Measure: None required.

Impact HYD-4. The proposed project could result in water discharges that exceed water quality objectives of the Central Coast Water Quality Control Plan or the California Toxics Rule.

Discussion: Based on a review of the water quality data for produced water samples supplied by PXP and correspondence between PXP and RWQCB, the primary water quality constituents of concern associated with the proposed water treatment facility include the following: pH, temperature, turbidity, dissolved oxygen, chlorides, sodium, sulfate, boron, non-ionic ammonia, 2-butanone, acetone, and phenol. Potential water quality impacts to sensitive aquatic species present in Pismo Creek and the Pismo Creek estuary include steelhead and tidewater goby. PXP's pilot test water quality data was reviewed to determine the anticipated water quality to be discharged from the proposed water treatment facility. Table 5.5-1 below presents the pertinent water quality analytical data from the untreated water samples (influent) and pilot study treated water samples (effluent).

Table 5.5-2 – Reported Pre- and Post-Treatment Concentrations of Constituent of Concern for PXP RO Water Treatment Facility
(all results reported in micrograms per Liter, µg/L, or parts per billion)

Constituent	Produced Water – Average (influent)[a]	Pilot Test Permeate (effluent)[a]	Applicable Regulatory Standard
2-butanone	860	56	--
Acetone	3,900	500	--
Benzene	12.1f	<0.50	1.0[b]
Ammonia	1500	280	25[c]
Phenol	86.67[f]	<5.0	1[d]
Arsenic	<10	<0.010	0.018[e]
Boron	7,440	730	--
Mercury	<0.2	NA	0.012[e]
Sodium	112,500	1,800	--
Chloride	500,000	6,900	--
Sulfate	13,000	1,700	--

Notes:

NA Not analyzed

-- Not applicable

a/ Pilot test data provided by PXP, 2006, except as noted.

b/ California Primary Maximum Contaminant Level (MCL) for drinking water.

c/ Basin Plan, expressed as NH_3 as N in receiving waters

d/ Central Coast Regional Water Quality Control Board, Basin Plan.

e/ National Toxics Rule

f/ Produced water sample analytical results, Entrix, Inc., January 2007.

-- No published state or federal regulatory standards.

A review of the pilot test data indicates that the proposed treatment technology would meet the applicable state and federal water quality criteria, including California Code of Regulations Title 22 criteria for organic and inorganic compounds in drinking water, for most of the key constituents analyzed during the pilot study.

Phenol. Phenol, also known as carbolic acid, is both a natural substance and a manufactured chemical. Phenol is a semi-volatile organic compound and is found in liquid form in many consumer products including mouth washes, cleaning products, and lozenges. Phenol has a distinct sickeningly sweet odor. Taste and smell of

phenol are possible at levels lower than those associated with effects that are harmful. Exposure to phenol in high amounts can result in skin burns, liver damage, dark urine, irregular heartbeat and, in some cases, death.

According to the applicant, phenol was not detected in effluent water samples collected during the pilot test study using the contract laboratory's analytical method detection limit of 5 µg/L. The analytical method detection limit by PXP's contract laboratory is higher than what is required by the RWQCB under the Basin Plan. Therefore, additional testing will be required to ensure that the discharged water meets the Basin Plan and other state and federal water quality standards.

A review of readily available literature and information supplied by PXP indicates that phenol can be removed from water through reverse osmosis. Phenol would not be substantially removed by air strippers due to its low Henry's Law constant (H_{cc}). This is considered a potential significant impact to aquatic species in Pismo Creek from the proposed discharge to Pismo Creek.

Table 3-7 in the Basin Plan provides specific water quality objectives for chlorides, sulfates, boron, and sodium for some of the sub-basins within the vicinity of the project. However, no specific water quality objectives have been adopted by the RWQCB for Pismo Creek.

The proposed project would be required to comply with applicable federal and state water quality standards regulated under the National Pollutant Discharge Elimination System (NPDES), which would ensure any discharges do not violate water quality objectives. However, to ensure compliance with NPDES regulations, mitigation is provided to reduce water quality impacts to a level of less than significant.

Impact Category: Class 2

Thresholds of Significance: 2, 4, 5

Mitigation Measure HYD-4:

A. Prior to operation, the applicant shall obtain an NPDES permit from the RWQCB. The requirements of the Permit shall be fully implemented including waste discharge limitations, and monitoring and reporting requirements.

B. ~~During operation, the applicant shall utilize granular activate carbon as a polishing unit to ensure that treated water does not contain phenol or other organic compounds that are present in concentrations in excess of RWQCB water quality standards but less than the contract laboratory's analytical method detection limit. The need for GAC treatment may be eliminated by the County in consultation with the RWQCB, CDFG, and NMFS, at such a time that analytical laboratory method limits can detect organic compounds at or below the RWQCB water quality standards.~~ During plant operations, the applicant shall report phenol concentrations ~~indicted~~ in effluent samples indicated above the method detection limits but less than quantitation limits. At such a time that laboratory analytical methods allow for lower quantitation limits, the applicant shall report phenol concentrations to the RWQCB to ensure compliance with the RWQCB's water quality standards.

Also refer to Mitigation Measure BIO-8 regarding proposed mitigation measures to ensure temperature and dissolved oxygen concentrations due not exceed ranges required for sensitive aquatic species.

Residual Impacts

Impact Category = Class 3. Implementation of this mitigation measure would reduce impacts to less than significant levels.

Impact HYD-5. An upset condition at the water treatment facility could result in the release of water not meeting water quality standards into Pismo Creek.

Discussion: The proposed project would include water quality monitoring devices that record water quality parameters and alarms for significant changes in water quality. Both automatic and operator controls would shut down the system in the event of an upset in water quality parameters.

Impact Category: Class 2

Thresholds of Significance: 5

Mitigation Measure HYD-5: The proposed water treatment system shall be constructed with sufficient holding capacity to contain water that fails to meet water quality per the NPDES permit or other agency permit conditions so that water not meeting specifications is not released to Pismo Creek.

Residual Impacts

Impact Category = Class 3. Implementation of this mitigation measure would reduce impacts to less than significant levels.

5.5.2.4 Cumulative Impacts

Project sites for the Spanish Springs project and Tract Map 2554 both appear to drain to Pismo Creek. As such, construction of these two projects may cause construction-related turbidity and sedimentation of Pismo Creek. Multiple projects near the creek could also increase erosion and increase creek sediment load, thus, resulting in a long-term impact for the area. However, the incremental contribution of the proposed project to this cumulative impact would be not substantial.

The proposed project will include the treatment of produced water to meet RWQCB discharge requirements per state and federal water quality standards for discharge to a surface water body containing sensitive aquatic species. The applicant does not propose to provide dis-infection treatment as part of the water treatment system. Disinfection by-products, such as tri-halo methanes, would not be allowable in the proposed water discharge to Pismo Creek. The water will not be disinfected, therefore, will not meet the criteria as a drinking water source. Therefore, the water is not anticipated to create growth-inducing impacts.